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BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Forward Resource Adequacy Procurement Obligations	Rulemaking 19-11-009 (Filed November 7, 2019)

COMMENTS OF FORM ENERGY, INC. ON THE DECISION ON TRACK 3B.2 ISSUES: RESTRUCTURE OF THE RESOURCE ADEQUACY PROGRAM

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I. Introduction

Pursuant to Section 14.3 of the Rules of Practice and Procedure, Form Energy, Inc. ("Form Energy") respectfully submits these opening comments on Administrative Law Judges (ALJ) Debbie Chiv and Amin Nojan's proposed *Decision on Track 3B.2 Issues: Restructure of the Resource Adequacy Program* ("PD") issued in the above captioned Resource Adequacy ("RA") proceeding on June 10, 2021.

Form Energy agrees with the California Public Utilities Commission ("Commission") that it is essential to restructure the Resource Adequacy program to ensure both near and long-term grid reliability as California transitions to a fully renewable and zero carbon grid. The slow progress the Commission and parties have made in reforming the RA program, despite

significant efforts to date, highlights the need for the Commission to take several important and foundational steps *before* undertaking a wholesale effort to restructure the RA program:

- The Commission must align RA program restructuring with efforts to address long-term reliability risks and with the preferred resource portfolios identified in the Integrated Resource Planning ("IRP") proceeding;
- The Commission should establish specific and actionable guiding principles by which it can assess RA restructuring proposals;
- The Commission must identify specific, addressable problems it seeks to remedy via the RA restructuring effort so that parties and the Commission can methodically propose options for the Commission to weigh;
- Before conducting workshops on RA restructuring proposals, the Commission should conduct foundational analytical work noticed jointly between the RA and IRP proceedings to define California's mid and long-term reliability risks, and it must reevaluate and resolve the following with regard to long-term reliability:
    - Define the conditions of highest reliability risk across all seasons and how they are likely to change over time;
    - Define appropriate reliability metrics;
    - Define appropriate reliability planning standards

We urge the Commission to clarify whether RA or IRP is the preferred forum to define future long-term reliability planning standards, preferred reliability metrics, and tolerable

reliability risks. The Commission should issue decisions on these matters, in either the IRP or RA proceeding, before continuing to pursue structural changes to the RA program.

We also urge the Commission to commit to restructuring the RA program with a view towards California's long-term electric reliability risks and least cost portfolio mix, rather than maintaining the RA program's narrow three-year-ahead view. The conflicts between the RA program and IRP are resulting in mixed signals to the market and to parties about 1) what issues should be addressed in what venue, and 2) how load serving entities ("LSE") should value resources in the near-term — a factor substantially determined by RA program rules — in a manner that aligns with long-term needs identified in IRP.

Lastly, and most importantly, we urge the Commission to commit to ensuring reliability during sequential day periods of high net load caused by extreme weather, low renewable generation, and correlations between these events and other contingencies. California's hourly energy insufficiency risks do not persist for one day only; they endure for days at a time. Despite this, the Commission's RA program continues to exclusively focus on near-term single day peaks and net peaks without regard to known multi-day reliability risks.

To realize California's goal of building an affordable, reliable, fully renewable and zero carbon electric grid, the RA program must begin to take the long-view of California's seasonally-varying, multi-day reliability risks, which, unfortunately, are already palpably manifest today as the entire West grapples with a multi-day heat wave coincident with a severe

drought, low hydro resource availability, and a natural gas fleet that fails to meet its modeled availability, especially during extreme heat events.[1]

II. Alignment with IRP and long-term reliability

A. IRP analysis and long-run reliability studies indicate that the conditions that cause reliability risks are changing. The RA program and the Commission's reliability planning efforts must change accordingly to account for multi-day reliability risks across seasons.

The Commission must align RA restructuring with efforts to address long-term reliability risks and with the preferred resource portfolios identified in the Integrated Resource Planning ("IRP") proceeding. Staff and parties have raised concerns that the current RA framework does not sufficiently ensure the grid's ability to meet peak demand or that sufficient capacity will be available at the appropriate time. We agree, but we note that staff and parties are not thinking broadly enough: the RA framework disregards multi-day reliability risks; it fails to acknowledge how those risks will evolve over time and vary by season; and it ignores correlated risks.

There is evidence across various Commission's proceedings that California's reliability risks are changing:

- Energy insufficiency risks will shift from summer peaks to winter periods and will be driven by periods of low renewable energy generation;[2]
- The system net load shape and hours of net peak load will flatten and extend in duration beyond today's narrow 4-5 hour peak;
- Reliability risks persist during multiple consecutive days;

[1] *See* Final Root Cause Analysis; Mid-August 2020 Extreme Heat Wave, at 47.
[2] *See* E3, Long-Run Resource Adequacy under Deep Decarbonization Pathways for California at 30.

- Electric reliability risks are correlated with natural gas system reliability and natural gas availability.

Additionally, other regions like the Midcontinent Independent System Operator ("MISO") are finding that energy insufficiency risks can emerge during shoulder months when weather-driven low renewable energy events are correlated with planned thermal plant outages,[3] a potential that California has yet to assess, as far as we are aware.

In the IRP proceeding and in previous comments filed in the RA proceeding, Form Energy has argued that both IRP and RA must start planning for multi-day reliability risks caused by extreme weather and low renewable energy generation. In recent IRP analysis, we used the Commission's data to demonstrate how frequent and significant these risks currently are. We also urged the Commission to analyze this issue further so that it can ensure long-term system reliability and properly value firm zero carbon resources. Specifically, we found that:[4]

- California experiences 50-hour renewable energy lulls *annually* on average. They are most common in winter, but they occur in spring and fall as well;
- California experiences 100-hour renewable energy lulls once in ten years on average;
- The worst case event over a 35-year period was a 142-hour lull, December 2010.

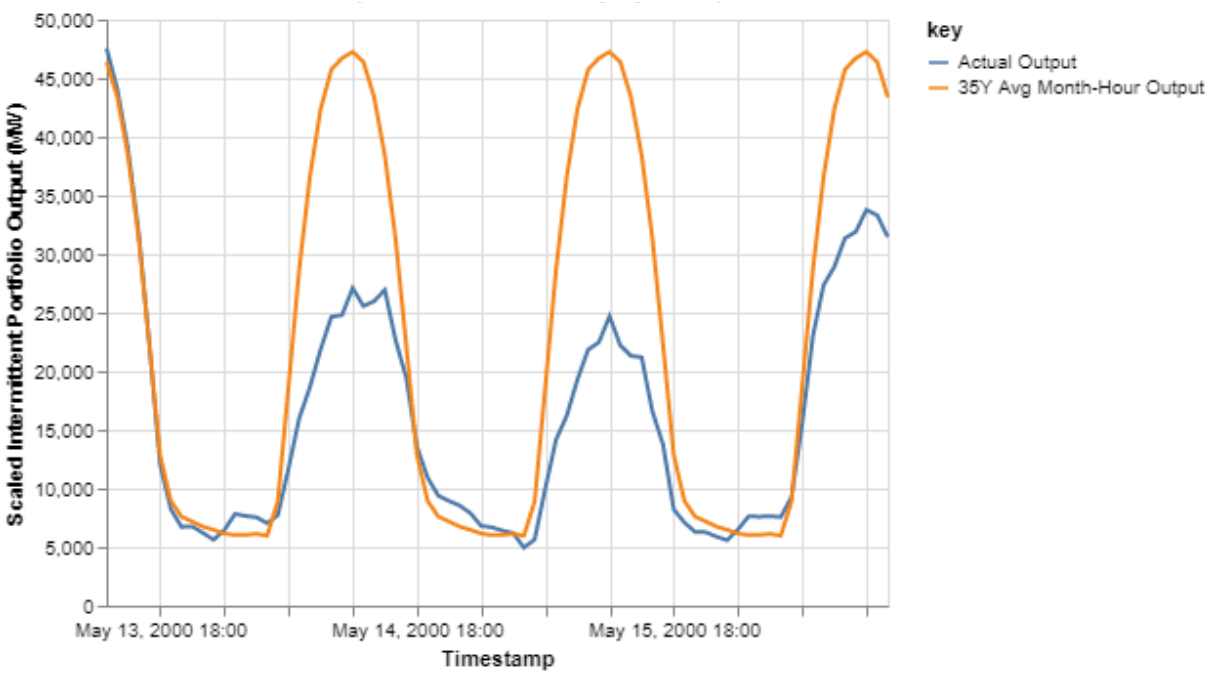
As we explained in IRP:

[3] *See* MISO Resource Availability and Need Issues Statement Whitepaper, March 30, 2018
[4] *See* R.20-05-003, Opening Comments of Form Energy, Inc. on Administrative Law Judge's Ruling Seeking Feedback on Mid-Term Reliability Analysis and Proposed Procurement Requirements, March 26, 2021, p. 3-5.

"Form Energy analyzed 35 years (1980-2014) of intermittent renewable generation profiles from the Commission's SERVM datasets used to conduct reliability assessments in the 2018 IRP cycle. Our goal in performing this analysis was to provide the Commission and parties with a replicable analytic basis to: 1) quantify the frequency and duration of low intermittent generation events in California that should be accounted for in Integrated Resource Planning ("IRP") planning standards; and 2) recommend what types of portfolio and firm zero carbon resource performance is needed to maintain system reliability during these events.

"In this analysis, we defined low renewable energy events as those in which actual renewable energy output is at least 25 percent below the 35-year average for consecutive hours…"

Figure 1. Example of a typical 50-hour low renewable energy event, May 13-15, 2020



B. The Commission must align the RA program restructuring effort with the same planning horizon and analytic record as IRP so the two programs can evolve together in lock step.

RA structural reforms must adopt the same long-term planning horizon and encompass the same analytic record as the IRP proceeding so the two programs can evolve together in lock step. The RA proceeding has too narrow of a planning horizon and an insufficient analytical record to make informed decisions about program structures that align with long-term resource needs identified in IRP. As such, the structural reforms that parties and the Commission staff have proposed threaten to misalign with IRP. We increasingly believe that the IRP proceeding is the better venue to both plan for long-term reliability needs and to inform how the RA framework should evolve in the near-term to align with state clean energy goals.

The Commission could align long-term reliability and IRP by creating a separate reliability track within IRP, staffed by Energy Division's RA team, so that IRP can define appropriate planning standards, planning metrics, and reliability risks around which portfolios should be designed and individual resource performance standards should be set. With these elements scoped elsewhere, the RA Program can focus on validating that LSE portfolios are reliable: it can revert to being the near-to-mid-term compliance program it was intended to be.

Regardless of its final determination, the Commission must at minimum address whether RA or IRP is the appropriate venue to address these issues or establish a new, designated procedural venue. Clear scoping will allow parties to participate effectively and ensure that the Commission has sufficient record to align long-term resource planning and reliability frameworks.

III. Guiding Principles

A. Critique of Proposed Guiding Principles

Form Energy agrees with the Commission that it is necessary to establish guiding principles as a foundational step so that the Commission and parties have a basis for comparing RA restructuring proposals, which is why we recommended a set of guiding principles in our Track 2 Proposals.[5] Our initial recommendations were that the commission should ensure: stable investment signals; transparent methodologies and assumptions; analytically-defined solutions; consistency between proceedings; and alignment with long-term Senate Bill ("SB") 100 goals.

The PD's proposed guiding principles are an improvement in part upon Form Energy's earlier recommendations, but we believe the principles should be further refined so they are more specific and actionable. Our primary concerns with the PD's proposed guiding principles are that they are not specific or comprehensive enough, and they are not sufficiently focused on the reliability risks and concerns that staff and parties have raised.

B. Recommended Principles

1. Ensure energy sufficiency during multi-day periods of high net load across all seasons.

California's most significant reliability risks are multi-day in nature: they occur during extended periods of extreme heat and extreme cold across the region, during extended periods of low renewable generation, and during extended grid contingencies like transmission and generation outages, all of which could occur coincidentally. These periods of highest risk also occur across all seasons. These facts are supported by the analysis we submitted to IRP and

[5] *See* Track 2 Proposals of Form Energy, filed February 21, 2020 in this proceeding.

reference herein, studies of long-term resource adequacy by E3, the Commission's IRP analysis, the Commission's natural gas reliability analysis in the Aliso Canyon gas storage investigation and in the natural gas system planning proceeding, Joint Agency SB 100 modeling, and the Joint Agency root cause analysis of the 2020 heat waves. The Commision has yet to directly acknowledge multi-day reliability across seasons as a priority around which resource adequacy should be planned. It threatens grid reliability and affordability by treating each day as an island.

Every RA restructuring proposal the Commission considers must first be judged according to whether it ensures reliability during consecutive multi-day periods of reliability risk. At present, none of the parties' Track 3B.2 proposals are designed to ensure reliability during multi-day periods. However, with modifications in response to this guiding principle, they all could be designed to ensure hourly energy sufficiency not only to meet a single day's net peak load, but also over successive day periods of high net peaks.

2. Ensure predictable and stable resource value that LSEs can transact.

We believe that the Commission's and parties' concerns surrounding "simplicity and transactability" expressed in proposed Principle 3 are more fundamentally related to a need to ensure that a resource's value is reasonably predictable and stable. The purpose of addressing "transactability" concerns is two-fold: 1) to ensure that project developers have sufficient stability to finance projects; and 2) to ensure that LSEs can easily buy and sell capacity to address changing needs.

We therefore recommend that the Commission reframe its Principle 3 to ensure that RA restructuring proposals and resource capacity counting methods ensure predictable and stable

resource value that LSEs can transact. This does not necessarily mean that a resource's value must be unchanging indefinitely; only that its value must be sufficiently understood and stable that project developers can finance projects without being subject to capricious regulatory change; and LSEs can treat resources as being reasonably fungible and tradable so they can fine-tune their portfolios over time. To achieve this outcome the Commission must take a longer view of reliability and long-term portfolio needs than it does at present: it must align RA with the IRP planning horizon. We note that the Commission may be justified in establishing a separate guiding principle to emphasize its interest in simplicity, an issue apart from "transactability."

3. Accommodate resource diversity and avoid creating competitive disadvantages between resources

The RA program must fairly value and accommodate a diverse set of resources and resource configurations. Form Energy's Track 2 proposals and response to the order instituting rulemaking ("OIR") for this proceeding highlighted the fact that the Commission's existing RA framework biases four-hour storage over long-duration and multi-day storage, primarily because the Commision has not accounted for multi-day reliability risks, considered reliability needs without regard to the existing thermal resource mix, or developed granular estimates of effective load carrying capacity ("ELCC") for diverse hybrid and storage resources.

The Commission is restructuring its RA program during a period of rapid technological and portfolio change, and it should evaluate all RA restructuring proposals according to how well they accommodate diverse technologies and resource configurations. For example, a 100 MW solar system could have very different reliability value if it were paired with a 20 MW / 80 MWh storage system compared to a 20 MW / 2,000 MWh multi-day energy storage system. It

would also have a completely different value if it were optimally hybridized with both a short-duration and a multi-day energy storage system. The technology combinations are diverse, and a successful RA program must both accommodate and avoid creating competitive disadvantages between technology types and classes.

Parties have asked the Commission to consider whether an ELCC or exceedence approach is a more reasonable way to quantify a resource's reliability value. We will not opine on that question here, except to say that in weighing such questions the Commission should examine how well competing proposals accommodate resource diversity.

4. Guarantee resource availability during periods of reliability risk

Many of the Commission's concerns regarding must offer obligations, a decline in LSEs' use of tolling agreements, uneconomic bidding behavior, and increasing reliance on use-limited resources all point to an underlying anxiety that the Commission does have sufficient guarantees that resources will be available when they are needed. The Commission should establish a guiding principle that the RA program should provide reasonable guarantees of resource availability. The Commission can then ask parties for pointed proposals about how to determine what degree of availability is reasonable and how best to guarantee resource availability at the contract level as well as the portfolio level during anticipated periods of reliability risk.

5. Allow for efficient wholesale market dispatch

The Commission has expressed concerns about resource bidding behavior in wholesale markets, and it has entertained proposals about how it may constrain resource bidding behavior. In any consideration about how to restructure the RA program to ensure resources are available

when they are needed, the Commission must also ensure that it is not unduly interfering with efficient wholesale market dispatch.

6. Align with long-term planning, decarbonization and environmental goals

The Commission's proposed Principle 2 links a need to address hourly energy sufficiency with a need to advance California's environmental goals. The Commission should separate these two imperatives. We believe hourly energy sufficiency should be reframed as a stand-alone principal focused on multi-day periods, as we suggest above. We also recommend that the Commission establish a principle focused specifically on the need for RA restructuring proposals to align with long-term planning in IRP as well as California's other environmental goals.

7. Minimize costs to customers

Cost minimization warrants being a stand-alone principle.

IV. Problem Definition

The Commision can facilitate a productive workshop process by more clearly defining and sequencing the problems it seeks to solve through the RA restructuring process. While staff and parties have identified a variety of issues and concerns, the PD does not identify a clear enough set of problems that this reform effort seeks to address: it addresses generalities.

The August 7, 2020, Staff Proposal described a number of perceived threats to reliability and energy affordability under the current RA construct: LSEs are increasingly relying on RA-only contracts, which are not subject to least-cost bidding requirements; resources may be bidding to avoid being dispatched when needed; market fragmentation disincentivizes LSEs to sign long-term RA contracts; LSEs are increasingly relying on use-limited resources as

traditional baseload resources retire; resource supply across the West is tightening due to increased summer demand and continued plant retirements, and other concerns.

Form Energy agrees that these issues merit consideration; however, they are not presently framed as problems that can or should be solved; they are symptoms of a changing grid and an RA framework that has failed to anticipate changes because it has focused solely on the near-term. If the Commission has preferred responses to these issues, it should express its preferences through the guiding principles that it adopts or findings and conclusions.

In the section below we recommend some foundational analysis and questions we believe need to be addressed before parties should hold workshops on implementation details to improve upon Pacific Gas and Electric Company's ("PG&E's") slice-of-day proposal.

V. The Commission should conduct foundational analytical work noticed jointly between the RA and IRP proceedings to define California's mid and long-term reliability risks before restructuring the RA program.

Future workshops to further refine PG&E's slice-of-day proposal will not be productive until the Commission first clarifies a set of more foundational issues.

Commission Decision 21-06-036 in IRP procurement to address mid-term reliability needs raised important questions about what planning standards are appropriate for IRP, what reliability metrics are most relevant, and what future resource and portfolio performance is needed to meet reliability risks. These questions are material to questions the Commission has raised in the RA proceeding about how the RA program should evolve.

We therefore urge the Commission to address the following issues in analysis and decisions *before* it entertains questions about RA program changes.

- What are the conditions of highest reliability risk across all seasons, and how are they likely to change over the long run?
    - The Commission should evaluate periods of extreme heat and cold, periods of low renewable energy generation, historic grid contingencies, and correlations between these events?
- What weather year standards should be used in long-run reliability planning and IRP?
- What reliability metrics should the Commission use when defining long-run reliability standards: loss of load expectation, loss of load hours, loss of load probability, effective unserved energy, or a combination of factors?
- What reliability planning standards are appropriate to ensure long-run reliability and align with the guiding principles outlined above?

It is appropriate to pause RA program restructuring questions at this time because the Commission has already ordered more than 13 GW of new resources to address urgent near and mid-term reliability risks. Conversations about RA program changes should now refocus on how to ensure both mid and long-term reliability in alignment with IRP.

VI. Conclusion

Form Energy appreciates the Commission's commitment to restructuring the RA program and addressing reliability risks, and we look forward to continuing to work with the Commission on these issues.

Respectfully submitted,

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